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Serial No. 09/578,507

B1
cont (b) contacting said solution containing plasmid DNA with said hydrophobic interaction media under conditions that said at least one impurity binds to the hydrophobic interaction media to form a complex; and

(c) collecting unbound plasmid DNA from said complex;

wherein said method is conducted in the absence of organic solvents, detergents, glycols, hexamine cobalt, spermidine, and polyvinylpyrrolidone.

B2 5. (Twice Amended) The method of claim 4 wherein the salt is ammonium sulfate.

B3 15. (Amended) The method of claim 12 wherein the media is at least one of a methacrylate ethylene glycol copolymer backbone or a cross-linked agarose backbone.

45. (Amended) The method of claim 41 wherein said resin is at least one of a methacrylate and ethylene glycol copolymer backbone or a cross-linked agarose.

B4 46. (Twice Amended) The method of claim 41 wherein said support is in the form of beads ranging in size from 15 to 100 μm .

Add the following claims.

--54. (new) A method of enriching supercoiled DNA relative to relaxed DNA in a mixture thereof, the method comprising :

B5 (a) forming a solution by adding a salt to the mixture of supercoiled DNA and relaxed DNA;

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(b) contacting the solution with a hydrophobic interaction media under a first condition where both the supercoiled DNA and relaxed DNA bind to the hydrophobic interaction media to form a bound first mixture;

(c) altering the first condition surrounding the bound first mixture to a second condition to remove relaxed DNA from the bound first mixture to form separate components containing a second bound mixture and relaxed DNA; and

(d) modifying the second condition surrounding the said second bound mixture to a third condition to remove supercoiled DNA from said second bound mixture to form separate components containing hydrophobic interaction media and supercoiled DNA.

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55. (new) The method of claim 54 wherein the hydrophobic interaction media comprises a chromatography support with pendent hydrophobic groups.

56. (new) The method of claim 55 wherein said pendent groups are selected from the group consisting of C₃ to C₁₀ alkyl groups.

57. (new) The method of claim 55 wherein the hydrophobic interaction media is selected from the group consisting of a methacrylate polymer or copolymer backbone bound to a least one of a propyl, butyl, hexyl, octyl, nonyl, or a mixture of these as ligands.

58. (new) The method of claim 55 wherein the media is at least one of a methacrylate ethylene glycol copolymer backbone or a cross-linked agarose.

59. (new) A method of claim 55 wherein the media is a resin in the form of beads in the size range of 15 to 100 μ m.

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60. (new) The method of claim 54 wherein the salt comprises an anion or cation selected from the group consisting of acetate, phosphate, carbonate, SO_4^{2-} , Cl^- , Br^- , NO_3^- , Mg^{2+} , Li^+ , Na^+ , K^+ and NH_4^+ .

61. (new) The method of claim 60 wherein the salt is ammonium sulfate in a concentration range of 2.5M to 4M.

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62. (new) The method of claim 54 wherein the first condition comprises equilibrating said media with a salt solution containing ammonium sulfate which is present in a concentration range of about 2.5M to 4M.

63. (new) The method of claim 54 wherein the second condition comprises washing the media with a salt solution containing ammonium sulfate in a concentration of about 2.35M to about 2.45M.

64. (new) The method of claim 54 wherein the said third condition comprises washing said second bound mixture with a salt solution containing ammonium sulfate in a concentration of about 1M to 2.3M.--

REMARKS

Reconsideration is requested.

Claims 30-40, 52 and 53 have been canceled, without prejudice. Claims 54-64 have been added. Support for the additional claims may be found throughout the specification and originally-filed claims, such as claims 52 and 17-29. No new matter has been added. Support for the amendment of claim 1 regarding the solvents may be